REMARKS

In accordance with the foregoing, the specification and claims 1-16 have been amended. Claims 1-16 and 48 are pending, with claims 1, 5, and 13 being independent. No new matter is presented in this Amendment After Final Rejection.

Specification and Claim Amendments and Entry of Amendment After Final Rejection

A new section entitled "CROSS-REFERENCE TO RELATED APPLICATIONS" has been inserted on page 1 of the specification to refer to Korean Patent Application No. 2001- 5374 filed on February 5, 2001, which is the Korean priority application of the present application. A claim for priority and a certified copy of the Korean priority application were filed on January 15, 2002, and are in the image file wrapper of the present application.

The paragraph on page 7, lines 24-28, of the specification has been amended to correct typographical errors. This change was also requested on page 2 of the Amendment of April 22, 2008, but the page number 7 was inadvertently omitted from the instructions.

Independent claims 1, 5, and 13 have been amended to recite that "the main data, the sub data, and the navigation information are asynchronously recorded" and dependent claims 2 and 6 have been amended to recite that "the main data, the sub data, the extra data, and the navigation information are asynchronously recorded" as agreed during the personal interview conducted on October 22, 2008, as discussed below to even more clearly distinguish the claims over Yamauchi et al. (Yamauchi) (U.S. Patent No. 6.088,507). Method claims 5-16 have been amended to delete the use of labels such as "(a)," "(b)," etc., for the various elements. Claims 1-6, 8, 10, 12, and 13 have been amended to make minor changes in grammar and punctuation.

For at least the foregoing reasons, it is submitted that this Amendment After Final Rejection does not raise new issues that would require further consideration and/or search, and accordingly it is submitted that entry of this Amendment After Final Rejection is proper under 37 CFR 1.116 and MPEP 714.12 and 714.13.

Errors in the Amendment of April 22, 2008

Claims 1, 5, and 14-16 were inadvertently identified with the status identifier "(Previously presented)" in the Amendment of April 22, 2008, However, the status identifier should have been "(Currently amended)" because claims 1, 5, and 14-16 were amended in the Amendment of April 22, 2008.

Applicants' Statement of Substance of Interview

A personal interview was conducted on October 22, 2008, by the following five people:

Examiner Gelek W. Topgyal;

Supervisory Patent Examiner (SPE) Thai Q. Tran, who is the Examiner's supervisor;

Attorney Hung. H. Bui of the law firm of Stein, McEwen & Bui, LLP, indicated below, who is one of the attorneys of record in the present application; and

Youngok Hyung and Kil-soo Jung of Samsung Electronics Co., Ltd., the assignee of the present application.

At the conclusion of the interview, Mr. Tran gave Mr. Bui a handwritten Interview Summary for the interview stating as follows:

Claim(s) discussed: all independent claims

Identification of prior art discussed: [left blank]

Agreement with respect to the claims was reached.

Substance of interview: The proposed amendment to include that the "main data", "sub-data", "extra data" and "navigation information" are asynchronously recorded or that the "main data", "sub-data", "extra data" and "navigation information" are recorded on separate files would overcome the applied reference.

On October 29, 2008, Mr. Topgyal mailed a typed Interview Summary for the interview stating as follows:

Claim(s) discussed: all independent claims

Identification of prior art discussed: Yamauchi

Agreement with respect to the claims was reached.

Substance of interview: The proposed amendment to include that the "main data", "sub data", "extra data" and "navigation information" are asynchronously recorded or that the "main data", "sub data", "extra data" and "navigation information" are recorded on separate files would overcome the applied reference.

The applicants' statement of the substance of the interview required by the Interview Summaries and MPEP 713.04 is as follows.

During the interview, Mr. Bui went over the arguments that appear below under the headings "Separate Bitstream Features" and "Playback Time Information Features" explaining why Yamauchi et al. (Yamauchi) (U.S. Patent No. 6.088,507) does not disclose these features recited in independent claims 1, 5, and 13 and dependent claims 2 and 6.

After discussing these arguments, Mr. Tran and Mr. Bui reached an agreement that amending independent claims 1, 5, and 13 to recite that the main data, the sub data, and the navigation information are asynchronously recorded, or that the main data, the sub data, and the navigation information are recorded on separate files, and amending dependent claims 2 and 6 to recite that the main data, the sub data, the extra data, and the navigation information are asynchronously recorded, or that the main data, the sub data, the extra data, and the navigation information are recorded on separate files, would overcome the rejection of claims 1-16 and 48 under 35 USC 102(e) as being anticipated by Yamauchi.

Claim Rejections Under 35 USC 102

Claims 1-16 and 48 have been rejected under 35 USC 102(e) as being anticipated by Yamauchi et al. (Yamauchi) (U.S. Patent No. 6,088,507). This rejection is respectfully traversed.

Claims 1 and 2

Separate Bitstream Features

It is submitted that Yamauchi does not disclose or suggest "sub data recorded in a separate bitstream from the main data to be reproduced in synchronization with the main data by a reproducing apparatus" as recited in independent claim 1, or "extra data recorded in a

separate bitstream from the main data and the sub data to be reproduced in connection with the main data by the reproducing apparatus" as recited in dependent claim 2.

These features are shown, for example, in FIGS. 3-5 of the present application, which show main data recorded in a bitstream on an optical disc 300, 400, or 500, sub data recorded on the optical disc 300, 400, or 500 in a separate bitstream from the main data, and extra data recorded on the optical disc 300, 400, or 500 in a separate bitstream from the main data and the sub data.

The Examiner considers the elementary streams (1)-(4) of moving picture data and audio data Ach, Bch, and Cch in FIGS. 4A and 4B of Yamauchi to correspond to "main data" as recited in claim 1; considers the elementary stream (5) of sub-picture data Ach in FIGS. 4A and 4B of Yamauchi to correspond to "sub data" as recited in claim 1; and apparently considers the elementary stream (6) of sub-picture data Bch in FIGS. 4A and 4B of Yamauchi to correspond to "extra data" as recited in claim 2. However, it is submitted that Yamauchi specifically discloses that the elementary streams (1)-(4) (main data), the elementary stream (5) (sub data), and the elementary stream (6) (extra data) are interleaved with one another in column 8, lines 40-43, of Yamauchi, which states as follows (emphasis added):

> FIG. 4A shows the construction of the VOB. The drawing shows a VOB and the materials interleaved in the VOB. The elementary streams (1)-(6) of the drawing are materials which are interleaved in the VOB.

Since Yamauchi specifically discloses that the elementary streams (1)-(6) in FIGS. 4A and 4B are interleaved with one another, it is submitted that the Examiner cannot interpret FIGS. 4A-4B as showing that the elementary stream (5) (sub data) is a separate bitstream from the elementary streams (1)-(4) (main data), and that the elementary stream (6) (extra data) is a separate bitstream from the elementary streams (1)-(4) (main data) and the elementary stream (5) (sub data). Accordingly, it is submitted that FIGS. 4A and 4B of Yamauchi do not disclose or suggest the feature "sub data recorded in a separate bitstream from the main data" recited in claim 1, or the feature "extra data recorded in a separate bitstream from the main data and the sub data" recited in claim 2.

In response to similar arguments presented on page 19 of the Amendment of April 22, 2008, the Examiner states as follows on page 3 of the Final Office Action of October 17, 2008:

> In response, the examiner respectfully disagrees. The word "bitstream" as recited in the claim can be interpreted in different [*sic*] light since the claim language does not specify the breadth of the word "bitstream". The claim language merely states that the main data, sub data and extra data are recorded in separate bitstreams. As taught in Yamauchi, each of the multiplicity of streams are recorded separately, i.e., at one specific point in time, no two streams as recorded on the medium overlap one another. At a point in time, there only exists information from a single stream, no two streams as recorded on the medium overlap one another. At a point in time, there only exists information from a single stream, e.g. video data or audio Ach data, etc. Furthermore, the claimed limitation can also be met if the data set of one VOBU unit is taken into consideration. A VOBU (see Fig. [*sic*] 3-4) consists of (1) (video data) (2)-(4) (audio data Ach, Bch, Cch), (5) (sub-picture Ach), and (6) (sub-picture Bch). Therefore, within this finite storage region of a single VOBU exists 6 separately [*sic*] bitstreams, and therefore, the limitations as claimed are clearly met since the size of the main, sub and extra data are not defined in the claim.

However, it is submitted that the Examiner's interpretation is directly contrary to the explicit disclosure in column 8, lines 40-43, of Yamauchi discussed above that "[t]he elementary streams (1)-(6) of the drawing [FIG. 4A] are materials which are interleaved in the VOB." In particular, it is submitted that the Examiner's interpretation of one VOBU as shown in FIGS. 3, 4A, and 4B of Yamauchi as being a "bitstream" as recited in claims 1 and 2 is directly contrary to Yamauchi's specific disclosure because Yamauchi's elementary streams (1)-(6) include the respective data pieces in all of the VOBUs.

Playback Time Information Features

Furthermore, it is submitted that Yamauchi does not disclose or suggest "playback time information for the sub data corresponding to the main data" as recited in claim 1, or "playback time information for the extra data corresponding to the main data" as recited in claim 2.

The Examiner considers the PGC information management table in FIG. 13A of Yamauchi to provide the "playback time information for the sub data corresponding to the main data" recited in claim 1, and the "playback time information for the extra data corresponding to the main data" recited in claim 2. However, it is submitted that the PGC information

management table does not provide these features of claims 1 and 2 for at least the following reasons.

The contents of the PGC information management table in FIG. 13A of Yamauchi are shown, for example, in FIGS. 13A, 13B, 14, and 15 of Yamauchi and described, for example, in column, 13, line 19, through column 15, line 53, of Yamauchi. However, it is not seen where anything whatsoever in these portions of Yamauchi may arguably be considered to disclose "playback time information for the sub data corresponding to the main data" as recited in claim 1, or "playback time information for the extra data corresponding to the main data" as recited in claim 2. The word "time" does not appear in these portions of Yamauchi.

Assuming *arguendo* that the sub-picture data Ach shown in FIGS. 4A and 4B of Yamauchi is "sub data" as recited in claim 1, and that the sub-picture data Bch shown in FIGS. 4A and 4B of Yamauchi is "extra data" as recited in claim 2, the SPCH table in the PGC management information table in FIG. 13A of Yamauchi merely includes permission flags and sub-picture IDs as shown, for example, in FIG. 13B of Yamauchi, and does not include playback time information for the sub-picture data Ach and Bch. Nor is it seen where any other portion of the PGC management table includes playback time information for the sub-picture data Ach and Bch.

In response to similar arguments presented on pages 19 and 20 of the Amendment of April 22, 2008, the Examiner states as follows on pages 3 and 4 of the Final Office Action of October 17, 2008:

> In re pages 19-20, the applicants argue that Yamauchi et al. fails to teach that the PGC information or the SPCH table includes "playback time information" as recited in claims 1, 5 and 13.
>
> In response, the examiner respectfully disagrees. The PGC information is used to "achieve the reproduction of a plurality of VOBs selected arbitrarily in an *arbitrary order*" as recited in col. 13, lines 19-21 and of "route information" in col. 13, lines 45-53. Similarly, the SPCH table information dictates in col. 14, line [*sic*] 10-14 to "secure the *continuity* of the audio reproduction is [*sic*] such case [*sic*] where the VOBs of the present PGC". Both these statements have defined a system where the different sets of data (sub-picture Ach, sub-picture Bch, video data and audio data, etc [*sic*]) are reproduced according to the order of reproduction as stored in the PGC management information/SPCH table. The order of reproduction has to be with *respect to time*, therefore, the

> claimed language of "wherein the navigation information comprises an identifier to identify a particular bitstream of the main data, and playback time information for the sub data corresponding to the main data" is met since the PGC management information allows for the different sets of data to be reproduced in synchronization according to the PGC management information.

However, it is submitted that the PGC information management table does not "allow[ ] for the different sets of data to be reproduced in synchronization according to the PGC management information" as alleged by the Examiner because the synchronization is inherently provided by interleaving the moving picture data, the audio data Ach, Bch, and Cch, and the sub-picture data Ach and Bch in each VOBU unit in units of about 0.5 seconds as shown in FIG. 4A Yamauchi and described in column 8, lines 44-60, of Yamauchi, which states as follows (emphasis added):

> Elementary stream (1) is moving picture data having beer [*sic*] compressed under MPEG2. Elementary stream (1) is interleaved in each VOBU in units of GOPs. Here, a GOP represents a piece of compressed moving picture data of about 0.5 seconds and includes at least an I-picture. A VOBU includes a GOP of moving picture data.
>
> Elementary streams (2)-(4) are audio data corresponding to the moving picture data and are also called audio channels A-C respectively. Each audio channel is divided into a plurality of parts which each, having almost the same time period as one GOP, are included in corresponding VOBUs.
>
> Elementary streams (5)-(6) are sub-picture data corresponding to the moving picture data and are also called sub-picture channels A-B respectively. Each sub-picture channel is divided into a plurality of parts which each, having almost the same time period as one GOP, are included in corresponding VOBUs.

Thus, when a VOBU is reproduced, the 0.5 seconds of moving picture data in that VOBU, and the 0.5 seconds of audio data and the 0.5 seconds of sub-picture data in that VOBU corresponding to the 0.5 seconds of moving picture data in that VOBU, are reproduced simultaneously, thereby achieving synchronization between the sub-picture data and the moving picture data without requiring playback time information for the sub-picture data Ach and Bch.

The permission flags in the SPCH table in FIG. 15 of Yamauchi specify which channel or channels of the sub-picture data is or are to be reproduced in a particular PGC. For example, in

PGC #1, sub-picture channel 0, corresponding to the English subtitle channel shown in FIG. 14 of Yamauchi, is reproduced. In PGC#2, sub-picture channels 0 and 2, corresponding to the English subtitle channel and the Japanese subtitle channel shown in FIG. 14, are reproduced. In PGC#3, sub-picture channels 0, 1, 2, and 3, corresponding to the English subtitle channel, the English subtitle channel "for people with hardness of hearing," the Japanese subtitle channel, and the Japanese subtitle channel "for people with hardness of hearing" shown in FIG. 14, are reproduced.

The VOB position information in the route information table in FIG. 15 of Yamauchi specifies the order in which the VOBUs are reproduced. For example, in PGC#1, the order of reproduction is VOB#1, VOB#2, VOB#3, and VOB#4 as shown in FIG. 14 of Yamauchi. In PGC#2, the order of reproduction is VOB#1, VOB#3, and VOB#4 as shown in FIG. 14. In PGC#3, the order of reproduction is VOB#1 and VOB#4 as shown in FIG. 14.

Furthermore, assuming *arguendo* that Yamauchi's PGC information management table may somehow arguably be considered to include playback time information of some kind, it is submitted that it does not include "playback time information for the sub data corresponding to the main data" as recited in claim 1, or "playback time information for the extra data corresponding to the main data" as recited in claim 2.

Accordingly, for at least the reasons above, it is submitted that Yamauchi's PGC information management table does not include "playback time information for the sub data corresponding to the main data" as recited in claim 1, or "playback time information for the extra data corresponding to the main data" as recited in claim 2. Nor is it seen where any other portion of Yamauchi discloses or suggests these features of claims 1 and 2.

Claims 5 and 6

It is submitted that Yamauchi does not disclose or suggest "recording sub data to be reproduced in synchronization with the main data in a separate bitstream from the main data" as recited in independent claim 5, or "playback time information for the sub data corresponding to the main data" as recited in claim 5, or "recording extra data to be reproduced in connection with the main data in a separate bitstream from the main data and the sub data" as recited in dependent claim 6, or "playback time information for the extra data corresponding to the main

data" as recited in claim 6 for at least the same reasons discussed above that Yamauchi does not disclose or suggest the same or similar features of claims 1 and 2.

Claims 13 and 16

It is submitted that Yamauchi does not disclose or suggest "reading sub data recorded in a separate bitstream from the main data, on the data storage medium, which is reproduced in synchronization with the main data" as recited in independent claim 13, or "playback time information for the read sub data corresponding to the read main data" as recited in claim 13, for at least the same reasons discussed above that Yamauchi does not disclose or suggest the same or similar features of claims 1 and 2.

Furthermore, it is submitted that Yamauchi does not disclose or suggest the following feature of claim 13:

reproducing the read main data and the read sub data based on navigation information defining a relation required for the read main data and the read sub data to be reproduced in synchronization with each other,

or the following features recited in dependent claim 16 depending from claim 13:

> wherein the reproducing of the read main data and the read sub data comprises:
>
> reading the navigation information defining a relation required for the read main data and sub data to be reproduced in synchronization with each other; and
>
> reproducing the read main data and the read sub data based on the navigation information.

The Examiner states as follows on page 8 of the Final Office Action of October 17, 2008:

> Yamauchi et al. teaches in Figs. 22-26 of a method of reproducing a particular Video Title Set using the management information (as discussed above) to reproduce main audio/video data along with synchronized sub-picture data. The system a [*sic*] disclosed in Figure 18 discloses wherein the main data, sub data and extra data are read from the optical disc by way of the system decoder 85, which splits them so they can be separately decoded. Thereon, [*sic*] the picture mixing unit mixes the main data, sub data and extra data together as defined in the PGC management information/SPCH table.

and as follows on pages 4 and 5 of the Final Office Action of October 17, 2008:

> It is understood that the data is stored in an interleaved manner, however claim 13 implements a reproduction method wherein the main data and the sub-data and additionally extra data are split up into separate streams by system decoder 86 upon reproduction, however the main data, sub data and extra data are decoded separately (another proof they are not mixed already) and mixed together once again for simultaneous reproduction/display (by using navigation information stored in the PGC management information).

It is not understood what the Examiner means by "claim 13 implements a reproduction method wherein the main data and the sub-data and additionally extra data are split up into separate streams by system decoder 86 upon reproduction" because claim 13 does not recite "a system decoder 86." The Examiner apparently meant to state that FIG. 18 of Yamauchi implements such a method, because FIG. 18 of Yamauchi shows a system decoder 86.

Furthermore, it is submitted that the picture mixing unit 90 in FIG. 18 of Yamauchi does not "mix[ ] the main data, sub data and extra data together as defined in the PGC management information/SPCH table" as alleged by the Examiner, and does not mix the main data, sub data and extra data "together once again for simultaneous reproduction/display (by using navigation information stored in the PGC management information)" as alleged by the Examiner. As described in column 16, lines 63-66, of Yamauchi, "[p]icture mixing unit 90 outputs video signals after mixing the outputs from video decoder 87 and sub-picture decoder 88 according to the ratio specified by system controlling unit 93." It is submitted that the "ratio specified by system controlling unit 93" is not "navigation information defining a relation required for the read main data and the read sub data to be reproduced in synchronization with each other" as recited in claim 13, and that nothing whatsoever in Yamauchi indicates that the "ratio specified by system controlling unit 93" is stored in Yamauchi's PGC information management table or SPCH table. As discussed above, synchronization in Yamauchi is inherently provided by interleaving the moving picture data, the audio data Ach, Bch, and Cch, and the sub-picture data Ach and Bch in each VOBU unit in units of about 0.5 seconds as shown in FIG. 4A Yamauchi and described in column 8, lines 44-60, of Yamauchi, and is not provided based on any information stored in the PGC information management table or SPCH table.

New Asynchronously Recorded Features

Although it is the applicants' position that claims 1-16 and 48 (i.e., claims 1, 2, 5, 6, 13, and 16 discussed above and claims 3, 4, 7-12, 14, 15, and 48 depending directly or indirectly from claims 1, 2, 5, 6, and 13) are patentable over Yamauchi for at least the reasons discussed above, solely in an effort to eliminate this issue and advance the prosecution of the application, independent claims 1, 5, and 13 have been amended to recite that "the main data, the sub data, and the navigation information are asynchronously recorded" and dependent claims 2 and 6 have been amended to recite that "the main data, the sub data, the extra data, and the navigation information are asynchronously recorded" as agreed during the personal interview conducted on October 22, 2008, as discussed above to even more clearly distinguish the claims over Yamauchi.

It is submitted that these changes to claims 1, 2, 5, 6, and 13 are supported at least by page 7, lines 6 and 7; page 7, lines 19-23; page 8, lines 12-25; and page 10, line 26, through page 11, line 2, of the specification, and provide certain advantages as described, for example, on page 12, lines 28-31, of the specification, which overcome certain disadvantages in the conventional art as described, for example, on page 1, lines 14-31, of the specification.

It is submitted that Yamauchi discloses an example of the above conventional art that has the disadvantages described, for example, on page 1, lines 14-31, of the specification of the present application because FIGS. 3, 4A, and 4B of Yamauchi show that main data (e.g., the video data and the audio data), sub data (e.g., the sub-picture Ach data), and extra data (e.g., the sub-picture Bch data) are interleaved in the same bitstream in a VOB (video object) as described in column 8, lines 40-43, of Yamauchi, which states as follows (emphasis added).

> FIG. 4A shows the construction of the VOB. The drawing shows a VOB and the materials interleaved in the VOB. The elementary streams (1)-(6) of the drawing are materials which are interleaved in the VOB.

Although FIG. 4A of Yamauchi shows elementary streams (1) (video data) (2)-(4) (audio data Ach, Bch, Cch), (5) (sub-picture data Ach), and (6) (sub-picture data Bch), these elementary streams (1)-(6) are not recorded in separate bitstreams on the optical disc, but are recorded on the optical disc interleaved in the VOBs as described in column 8, lines 40-43, of Yamauchi reproduced above.

Thus, Yamauchi's elementary streams (1) (video data) (2)-(4) (audio data Ach, Bch, Cch), (5) (sub-picture data Ach), and (6) (sub-picture data Bch) are recorded in a multiplexed single bitstream like in the conventional art described above. Accordingly, it is submitted that Yamauchi's data is synchronously recorded in a single bitstream, rather than being asynchronously recorded in separate bitstreams as now recited in claims 1, 2, 5, 6, and 13.

Conclusion—Claim Rejections Under 35 USC 102

For at least the foregoing reasons, it is respectfully requested that the rejection of claims 1-16 and 48 (i.e., claims 1, 2, 5, 6, 13, and 16 discussed above and claims 3, 4, 7-12, 14, 15 and 48 depending directly or indirectly from claims 1, 2, 5, 6, and 13) under 35 USC 102(e) as being anticipated by Yamauchi be withdrawn.

Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with the filing of this paper, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

STEIN, MCEWEN & BUI, LLP

Date: 11/25/08

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